

Remarks

In the Office action of June 2, 2009, Applicants were reminded that non-elected claims 5, 8-20 withdrawn from consideration are still pending. Claim 5, as presently amended, is related to the elected claims 1 and 4 as genus-species and is subject to reinstatement upon allowance of its base claims. Amended claim 5 is therefore retained in the present case until the conclusion of prosecution. Non-elected claims 8-20 are related to the elected claims as method of making and product made or as method of making and method of use, and are not reinstatable even if the elected claims are allowed. Claims 8-20 are cancelled herein. Applicants reserve the right to file one or more divisional applications based on the withdrawn and now cancelled claims. The inventorship of the present case is unchanged.

The listing of references in the specification (p.2) was stated to be not a proper information disclosure statement, and thus has not been considered by the Examiner. Applicants delete this page from the specification and have filed an information disclosure statement in compliance with 37 CFR 1.98.

Claims 1-4, 6-7, and 21 (all elected claims) were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wong (U.S. Patent No. 6,261,497) in view of either Brannon et al. (U.S. Patent No. 2,400,482) or Krumdieck (U.S. Patent No. 5,550,033).

Wong describes preparing a controlled pore glass (CPG) embedded synthetic resin membrane, which begins by mixing CPG with an aqueous dispersion of thermoplastic polymer resin to form a paste-like mass, gelling the mass and then calendering the gelled mass in several passes to produce a sheet. The amount of water required in the mixture is an important variable to produce the needed flow rate for

obtaining a uniform dispersion or homogeneity, while also assuring that the resulting sheet has suitable rigidity. The amount of water needed is a function of the pore volume of the CPG particles. (cf., Wong, Table for Example 2) Note that at this point in the process, Wong's CPG has not yet been silane-modified/silanized. Next, the formed sheets are sintered at 340-375 °C for 30 to 60 minutes. The sintered sheet may then be subjected to surface modification, e.g., by silanization, to provide functional groups for binding biological moieties. The modified sheets can washes to remove any excess silane and baked in an oven at 90 to 100 °C for 8 to 16 hours (examples 8 and 9).

Disregarding the previously argued difference between Wong's calendering of sheets and the present claimed method's filling of cylindrical wells that act as molds, which is the cause for the citation of the two secondary references to Brannon and Krumdieck, there are additional differences that are significant. An important difference is in the timing of the silane modification of the CPG. As claimed, the present invention recites mixing of the polyalkylene with silane-modified CPG prior to filling the wells, heating, and cooling the mixture. That is, the CPG has already been modified before any other step. (Claim 1: "mixing... with a silane-modified CPG") In Wong, the silanification of the CPG occurs at the very end of the fabrication process, i.e., after the mixing, calendering and sintering. This important difference is related to two other differences between the present claims and the Wong patent. In Wong, mixing and calendering occurs in the presence of water, by way of the aqueous dispersion of the synthetic resin the mixture. Indeed, water is essential in Wong's case for adequate flow during the mixing and calendering to achieve sufficient homogeneity. In the present claimed subject matter, the mixture uses no water at all ("aqueous free", specification

page 6, line 11, and amended claim 1). The difference in timing of the silane-modification of CPG is also related to the difference in temperature of heating or sintering. In Wong, a sintering temperature of at least 340 °C is used, whereas in the present claimed method the heating is limited to at most 220 °C. (Claim 1: "heating said plate at 180 °C to 220 °C") While Wong does not state a reason for his rather harsh protocol, it is believed that the sintering temperature is related to the need to drive out the water to achieve adequate sheet rigidity in a reasonable time frame of not more than 60 minutes. Since we need no water, a milder heating can be employed.

All of these differences mean that we can perform the silane modification of the CPG prior to mixing with the polyalkylene. In contrast, Wong must defer silanization to the end of the process in order to avoid surface hydrolysis of the functional groups due to presence of water in the mixture, and to avoid thermal decomposition or altering of the functional groups because of the high sintering temperatures. Since we create an aqueous-free mixture, we avoid hydrolysis of functional groups on the silane-modified CPG and can heat the mixture to a gentler 180 °C to 220 °C, avoiding decomposition of the functional groups. The overall effect on the final product is significant. Carrying out silanization upon the CPG embedded devices, as in Wong, is more difficult and yields silanization gradients and therefore less homogeneous loading of the CPG with the functional groups. Using already silane-modified CPG in our initial mixture yields embedded devices with a more homogeneous loading and a regular loading capacity. These claimed differences are neither disclosed nor suggested by Wong, and indeed are counter-indicated by Wong's teaching that an adequate amount of water in the mixture is essential to his sheet formation

process. The present claimed subject matter is therefore deemed to be non-obvious and patentable over the cited art.

The cited patents to Brannon et al. and Krumdieck do not supply any of the missing disclosure. Brannon et al. simply discloses resin casting molds made of metal with specific attention to the making of such molds with a contour and rigidity that facilitates resin pouring, handling of any spillage of excess resin, and ejection of the hardened castings. There is no discussion of CPG-embedded resins, silane modification of CPG, mixing requirements or sintering temperatures. The emphasis is entirely on the mold itself. Likewise, Krumdieck discloses a mold for embedding tissue samples in a gelatinous substance, with particular attention to a plunger 22 for releasing the product from the cylindrical cavities 14 of the aluminum mold. Again, there is no discussion of CPG silane modification, mixing, or sintering. The focus is instead on making sure that the tissue sample is properly oriented to facilitate uniform slicing of the tissue without shredding. The relevance of these two new references is solely related to the use of molds in the form of cylindrical wells in an aluminum or other metal plate and to the releasing of a product, whether of resin or hardened gelatin, from said mold. The differences noted above for Wong would not be supplied or suggested by the cited Brannon and Krumdieck patents.

Conclusion

Applicants request reconsideration of the claims in light of the amendments and remarks made herein. A Notice of Allowance is earnestly solicited.

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) on the date shown below.

Signed: *Sally Azevedo*
Typed Name: Sally Azevedo

Date: August 26, 2009

Respectfully submitted,

Mark Protsik

Mark Protsik

Reg. No. 31,788

Schneck & Schneck

P.O. Box 2-E

San Jose, CA 95109-0005

(408) 297-9733